

extreme suspicion. I think that Steil looked in Supplement II of the Index Filicum, where *P. sulcata* Meyen ex J. Smith (1846) is referred to *P. flava* Goldm. on the authority of Hieronymus (in the Hedwigia reference cited by Steil). This species *P. flava* is a little known plant of the Philippine Islands, considered by Copeland (Fern Flora of the Philippines 1: 134. 1958) as a synonym of *P. glaucovirens* Goldm. I do not believe that this species is or was in cultivation in Berlin or Kew. My guess is that the plant studied was *Pteris vittata* L., but this can probably not be proved at the present time. This instance points up the desirability of keeping permanent voucher specimens for plants under experimental studies filed in a permanent herbarium. I would guess also that the classic studies on apospory by Goebel in 1909 which were said to be based on plants of *Pteris longifolia* L. were really also based on plants of *Pteris vittata* L., which was formerly combined with *P. longifolia* until Hieronymus differentiated them (Hedwigia 54: 283-294. 1914), because *P. vittata* is much commoner in cultivation than the true *P. longifolia*.—C. V. MORTON, Smithsonian Institution, Washington, D. C. 20560.

MARSILEA QUADRIFOLIA L. IN WESTERN MASSACHUSETTS.—The water clover, *Marsilea quadrifolia* L., originally introduced from Europe, is found occasionally throughout the northeastern United States and adjacent Ontario. Miller¹ noted that it is still very local and has not become a pest of waterways like the introduced flowering rush, *Butomus umbellatus*, or the water hyacinth, *Eichornia crassipes*.

The species has been found in several lakes and rivers in eastern Massachusetts²; it first appeared in western Massachusetts in Paradise Pond on the Smith College campus at Northampton. Paradise Pond was formed by damming the Mill River at a time prior to the founding of the college.

¹Miller, B. A New Locality for *Marsilea quadrifolia* L. Amer. Fern J. 46: 90-91. 1956.

²Churchill, J. R., et al. Reports of the Flora of Massachusetts, II. Rhodora 35: 351-359. 1933.

Marsilea was apparently absent from the pond in 1941; by 1945 it was well established next to the college greenhouses in a small lily pool from which it has more recently been eradicated. Since that time it has spread along the banks of the 25-acre pond and downstream a distance of two miles along the Mill River to the large marsh at Arcadia Wildlife Sanctuary.

In the pond *Marsilea* occupies areas of deeper water than *Sagittaria* and other emergent aquatic vegetation. Plants of *Lemna minor* have been observed overlying the floating leaves of *Marsilea*, but the water clover seems to thrive best in sites where a gentle current carries the duckweeds away. *Marsilea* does not grow in the part of the pond where the currents of the Mill River are strongest near the bank.

Abundant growth of *Marsilea* seems to be associated with man-made disturbance. When the pond has been drained to remove *Elodea* and other submerged aquatics, the growth of *Marsilea* has been particularly vigorous. Near Arcadia Wildlife Sanctuary, where the presence of a dump and bull-dozing activities have disturbed the marsh environment, *Marsilea* occurs in ponds with *Nuphar* and other aquatic plants. In undisturbed sites within the marsh, *Marsilea* is absent although its native associates are present. The downstream dispersal is effected by fragmented rhizomes and possibly sporocarps of the plant which are carried by the current.

Distribution upstream has been slower. By the fall of 1965, a more or less continuous colony extended 1078 feet upstream from the drain through which the *Marsilea* originally was introduced into Paradise Pond. In 1964, isolated plants were found in a small inlet near the entrance of Mill River to the pond, about 300 feet upstream from the main colony. During 1965, this colony spread downstream 134 feet, and small new colonies appeared about 180 feet upstream.

In 1953, *Marsilea quadrifolia* was found in a pond on the campus of the University of Massachusetts at Amherst; since then it has over-run the pond and become a serious pest.—C. JOHN BURK, *Smith College, Northampton, Massachusetts 01060.*